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DRAFT MEMORANDUM

To:	Gary Miller U.S. Environmental Protection Agency	**Date:**	June 10, 2011
From:	Jennifer Sampson, Integral Consulting Inc. David Keith, Anchor QEA, LLC		
Cc:	March Smith and Andrew Shafer, McGinnes Industrial Maintenance Corporation Philip Slowiak, International Paper Company		
Re:	Draft Addendum 2 to the Soil Sampling and Analysis Plan (SAP) for Residential Soil Sampling, San Jacinto River Waste Pits Superfund Site		

INTRODUCTION

This draft memorandum is the second addendum to the Sampling and Analysis Plan (SAP) for the Soil Study at the San Jacinto River Waste Pits (SJRWP) Superfund site (Site) (Integral 2010), and is submitted on behalf of International Paper Company (IPC) and McGinnes Industrial Maintenance Corporation (MIMC) (collectively referred to as Respondents), pursuant to the requirements of Unilateral Administrative Order (UAO), Docket No. 06-03-10, which was issued on November 20, 2009 (USEPA 2009a). The UAO requires Respondents to conduct a Remedial Investigation/Feasibility Study (RI/FS) for the Site.

This draft addendum to the Soil SAP (Integral 2010) was prepared in response to a letter from the U.S. Environmental Protection Agency (USEPA) (Miller 2011, pers. comm.), wherein USEPA directs IPC and MIMC to conduct soil sampling in residential areas near the Site. This draft addendum describes soil sampling at residential locations that will be identified by USEPA and the Respondents prior to initiation of the field event.

This draft addendum includes the objectives for residential soil sampling, describes the depth of samples, the soil analytes, and sampling and analysis methods. It also identifies the quality assurance and quality control (QA/QC) procedures that will be applied. Soil sampling and analyses described in this draft addendum will be conducted in full compliance with the Soil

SAP (Integral 2010) and related appendices (including the Field Sampling Plan, which is Appendix A to the Soil SAP).

STATEMENT OF THE PROBLEM

USEPA has directed the Respondents to determine the concentrations of polychlorinated dibenzo-*p*-dioxins (dioxins) and polychlorinated dibenzofurans (furans) in the soils of residential areas that are near the Site and that are within the 100-year floodplain (Figure 1). The purpose of the sampling is to address residents' uncertainty as to whether flooding events may have caused dioxins and furans originating from the waste impoundments to be carried to their properties.

ANALYSIS OF EXISTING INFORMATION AND SELECTION OF SOIL ANALYTES

Existing soil and sediment data from areas on or near the Site, that are closer to the Site than those areas being considered by USEPA for this residential soil sampling study, show that, in most locations, the concentrations of dioxins and furans are well below USEPA's interim residential soil screening value of 72 ng/kg toxic equivalent (TEQ) concentration (USEPA 2009b).

The only soil and/or sediment samples that exceed the USEPA interim residential soil screening value are (i) samples located within the 1966 perimeter of the original waste impoundments, (ii) four sediment samples from the area between the Site waste impoundments and the upland sand separation area, or immediately to the north of this area, and (iii) one soil sample from 1 to 2 feet below the surface from the northeastern area of the upland sand separation area (Figure 2). TEQ concentrations in the soil drop significantly in areas outside of the 1966 impoundment perimeter and outside the area known to have been directly impacted by dredging and sand separation activities.

PROJECT ORGANIZATION, METHODS, AND QUALITY ASSURANCE PROCEDURES

Soil sampling and analyses described in this draft addendum will be conducted in full compliance with the Soil SAP (Integral 2010) and related appendices (including the Field Sampling Plan, which is Appendix A to the Soil SAP), in the context of the objectives and residential sampling locations relevant to this task. The Soil SAP describes the means to achieve all QA/QC requirements and documentation articulated by USEPA's guidance for

preparation of quality assurance project plans, and field sampling plans (USEPA 1998, 2001); these specifications will be applied to the collection, analysis, QA review, data management, and reporting of the information generated as described in this draft addendum. Sampling personnel will comply with the overall Health and Safety Plan (HSP) (Anchor QEA 2009) and Addendum 3 to the overall HSP that is provided in the Soil SAP (Integral 2010, Appendix A, Attachment A-3).

All of the soil analytes, the method reporting limits, and method detection limits are listed in Table 1.

DATA QUALITY OBJECTIVES

This section provides a summary of the data quality objectives for the proposed residential soil sampling, inclusive of the objective of the task, analytical approach and sampling locations.

People living near this section of the San Jacinto River could potentially be exposed to dioxins and furans in soil via direct contact with soils (ingestion and dermal) or inhalation of airborne particulates if dioxins and furans originating from within the 1966 impoundment perimeter have been transported to soils in the floodplain (Figure 1). Addressing related uncertainties requires information on concentrations of dioxins and furans in residential soils accessible to people. The residential soil study will address uncertainty and data gaps regarding concentrations of dioxins and furans present in soils in residential areas adjacent to the Site and that are directly contacted by people.

Sampling Objective

The residential soil sampling design was developed in consideration of the following:

- Uncertainty regarding whether the TEQ concentration in soils in residential areas near the San Jacinto River Waste Pits and within the San Jacinto River floodplain exceed the USEPA Draft Interim Residential Preliminary Remediation Goal of 72 ng/kg TEQ
- The depth of soil at which human exposures may occur in residential areas.

The objective of sampling is to address the uncertainty at a soil depth that could potentially lead to exposure in residential areas.

Analytical Approach

To assess the potential for exposure within the residential areas near the river that could be impacted by floodplain soils, two residential areas were defined (Figure 1): an area to the west of the Site (between Meadowbrook and River Road), and a second area along the eastern shoreline of the San Jacinto River to the northeast of the waste impoundments. The only chemicals proposed for analysis at all stations are the 17 toxic dioxin and furan congeners (Table 1), as stipulated by USEPA. The analytical methods will be consistent with those described in the Soil SAP (Integral 2010) and are provided in Table 2.

The residential soils will be compared with the interim residential soil screening TEQ value of 72 ng/kg (dry weight) and with the reference envelope value calculated on the basis of a site-specific background area study for which soils were previously collected and analyzed as discussed in the Soil SAP (Integral 2010). This will allow comparison of soil samples from residential soils with local background conditions. Reference envelope values are under development and will be reported in the Preliminary Site Characterization Report to be submitted in July, 2011.

Sample Locations and Depth

Soil samples will be collected from 10 residential locations where access is granted by the property owner (Table 3). To be included in the sampling event, a residential property must be both within the 100-year floodplain (Figure 2), and be generally free of debris and obstructions to soil sampling, and free of obvious soil impacts due to physical disturbance or sources of household chemicals such as crank case oil, paint, etc. Four aliquots from each sampled residence will be composited into a single sample from that residence. Locations will be randomly selected within each sampled property using a global positioning system (GPS) during the sampling event, but effort will be made to avoid stained or otherwise obviously affected soil (e.g., walkways, parking areas or driveways with crushed gravel or concrete), areas near burn barrels, fire pits and barbecues, and the four locations will be evenly spaced across the property to the extent practicable given these limitations. A USEPA representative will be present during sampling and will be consulted in the selection of the location for collection of each soil aliquot. The USEPA representative will also serve as liaison with residents during the sampling event.

A unique sample number will be assigned to each sample. Soil samples will be collected at three depths, 0 to 6 inches (0 to 15 cm), 6 to 12 inches (15 to 30 cm), and 12 to 24 inches (30 to 60 cm). Depending upon the soil interval to be collected, the soil samples will be collected using either a stainless-steel shovel, trowel, or spoon; or stainless-steel hand auger or hand corer (Table 3). After the soil sample has been collected, any excess soil will be returned to its respective hole. If necessary, supplemental soil will be available to the sampling crew and will be used to supplement the original soil so that the hole is completely filled after sample collection is completed. If the station is covered by grass, then prior to sample collection, a small section of grass will be cut away and saved by the sampling team. Once the hole has been filled, the small grass square will be placed back on the soil surface, tamped down, and watered.

For each of these, the full depth interval will be homogenized prior to removing aliquots for each analysis, as described in Section 2.1.3 of Appendix A to the Soil SAP (Integral 2010). Geographic coordinates of each sample location will be collected using a differential GPS at the time of sampling. Field QC samples will include one field split per depth interval, three equipment filter wipes, one filter blank, and one Standard Reference Material. All other field and laboratory QA/QC procedures will be implemented as described by Integral (2010).

Rocks and other debris and gross vegetation will be removed from the sample prior to homogenization, and any such removals will be documented in the field log, as described in Section 2.1.3 of Appendix A to the Soil SAP (Integral 2010). Photographs of each composite sample, and of the subsampling locations within the sampled yard and sampling area, will be included in the project documentation.

Only the composite of soils collected from 0 to 6 inches will be analyzed for dioxins and furans; other samples will be archived. At all sample locations, and for all depth intervals, sufficient mass of soil will be collected for the required analyses; additional soil will be archived for possible future analysis. Sample containers, preservation, and holding time requirements will be consistent with those described in the Soil SAP (Integral 2010) and are provided in Table 4.

Timing of Sampling and Reporting

USEPA and the Respondents will request access for sampling from multiple households upon approval of this draft addendum, first by letter, and then by door-to-door visits to households within the study area shown on Figure 1. Sampling will be conducted at 10 residences according to where USEPA and the Respondents are able to gain timely access. Samples will be collected within 30 days of USEPA and the Respondents obtaining all necessary access agreements for the residential sampling. Chemical analyses will be requested from the laboratory on a standard turn-around time. Unvalidated data are expected to be available within 4 weeks of sampling, and validated data will be available electronically within 5 weeks of sampling. It is anticipated that the data from this sampling event will be presented to USEPA in the Remedial Investigation report.

Sample Collection Matrix

Table 5 provides a checklist of samples for use in the field during sampling. It is analogous to Table A-3 in Appendix A of the Soil SAP (Integral 2010).

REFERENCES

Anchor QEA, 2009. Health and Safety Plan San Jacinto River Waste Pits Superfund Site. Prepared for McGinnes Industrial Maintenance Corporation, International Paper Company, and U.S. Environmental Protection Agency, Region 6. Anchor QEA, Ocean Springs, MS.

Integral, 2010. Sampling and Analysis Plan: Soil Study San Jacinto River Waste Pits Superfund Site. Prepared for McGinnes Industrial Maintenance Corporation, International Paper Company, and U.S. Environmental Protection Agency, Region 6. Anchor QEA, Ocean Springs, MS, and Integral Consulting Inc., Seattle, WA.

Miller, M.G., 2011. Personal communication (letter to D. Keith, Anchor QEA, Ocean Springs, MS, dated May 20, 2011, regarding residential soil sampling). U.S. Environmental Protection Agency, Dallas, TX.

USEPA, 1998. EPA Guidance for Quality Assurance Project Plans. EPA QA/G-5. U.S. Environmental Protection Agency, Washington, DC.

USEPA, 2001. EPA Requirements for Quality Assurance Project Plans. EPA QA/R-5. EPA/240/B-01/003. U.S. Environmental Protection Agency, Office of Environmental Information, Washington, DC.

USEPA, 2009a. Unilateral Administrative Order for Remedial Investigation/Feasibility Study. U.S. EPA Region 6 CERCLA Docket No. 06-03-10. In the matter of: San Jacinto River Waste Pits Superfund Site Pasadena, Texas. International Paper Company, Inc. & McGinnes Industrial Management Corporation, respondents.

USEPA, 2009b. Draft Recommended Interim Preliminary Remediation Goals for Dioxin in Soil at CERCLA and RCRA Sites. OSWER 9200.3-56. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation, Washington, DC.

Table 1
Analytes, Method Reporting Limits, and Method Detection Limits for Residential Soil Samples

Analyte	CAS Number	Method Detection Limit	Method Reporting Limit
Conventionals			
Percent moisture (percent)	--	NA	NA
Total organic carbon (percent)	--	0.02	0.05
Organics			
Dioxins/furans (ng/kg-dry weight)			
1,2,3,4,6,7,8-Heptachlorodibenzo-*p* -dioxin	35822-46-9	0.0539	5
1,2,3,4,6,7,8-Heptachlorodibenzofuran	67562-39-4	0.0482	5
1,2,3,4,7,8,9-Heptachlorodibenzofuran	55673-89-7	0.0561	5
1,2,3,4,7,8-Hexachlorodibenzo-*p* -dioxin	39227-28-6	0.0616	5
1,2,3,4,7,8-Hexachlorodibenzofuran	70648-26-9	0.0688	5
1,2,3,6,7,8-Hexachlorodibenzo-*p* -dioxin	57653-85-7	0.0500	5
1,2,3,6,7,8-Hexachlorodibenzofuran	57117-44-9	0.0489	5
1,2,3,7,8,9-Hexachlorodibenzo-*p* -dioxin	19408-74-3	0.0525	5
1,2,3,7,8,9-Hexachlorodibenzofuran	72918-21-9	0.0521	5
1,2,3,7,8-Pentachlorodibenzofuran	57117-41-6	0.0501	5
1,2,3,7,8-Pentachlorodibenzo-*p* -dioxin	40321-76-4	0.0656	5
2,3,4,6,7,8-Hexachlorodibenzofuran	60851-34-5	0.0490	5
2,3,4,7,8-Pentachlorodibenzofuran	57117-31-4	0.0444	5
2,3,7,8-Tetrachlorodibenzo-*p* -dioxin	1746-01-6	0.0664	1
2,3,7,8-Tetrachlorodibenzofuran	51207-31-9	0.0726	1
Octachlorodibenzo-*p* -dioxin	3268-87-9	0.0990	10
Octachlorodibenzofuran	39001-02-0	0.0782	10
Total tetrachlorinated dioxins	41903-57-5	NA	1
Total pentachlorinated dioxins	36088-22-9	NA	5
Total hexachlorinated dioxins	34465-46-8	NA	5
Total heptachlorinated dioxins	37871-00-4	NA	5
Total tetrachlorinated furans	30402-14-3	NA	1
Total pentachlorinated furans	30402-15-4	NA	5

Table 1
Analytes, Method Reporting Limits, and Method Detection Limits for Residential Soil Samples

Analyte	CAS Number	Method Detection Limit	Method Reporting Limit
Total hexachlorinated furans	55684-94-1	NA	5
Total heptachlorinated furans	38998-75-3	NA	5
2,3,7,8-TCDD TEQ	NA	NA	NA

Notes

-- = information not available

NA = not applicable

TEQ = toxicity equivalent

Table 2
Proposed Laboratory Methods for Soil Samples

Parameter	Laboratory	Sample Preparation		Quantitative Analysis	
		Protocol	Procedure	Protocol	Procedure
Conventional and Geotechnical					
Total organic carbon	CAS-Kelso	USEPA 9060A	Acid pretreatment	EPA 9060A (modified for sediment)	Combustion
Grain size	CAS-Kelso	NA	NA	ASTM D-422 and D-1140 with USEPA (1986) modifications	Sieves and pipette method
Organics					
Dioxins/furans	CAS-Houston	USEPA 1613B	Soxhlet extraction	USEPA 1613B	HRGC/HRMS
			Silica gel column cleanup		
			Additional cleanup as needed		

Notes

HRGC = high-resolution gas chromatography

HRMS = high-resolution mass spectrometry

NA = not applicable

USEPA = U.S. Environmental Protection Agency

Table 3
Number of Residential Soil Sampling Locations

Sample Group	Sampling Method and Depth	Number of Locations	Sample Locations	Analytes	Study Elements
Surface soil	Stainless steel shovel, trowel, spoon, or hand auger 0–6 inches (0–15 cm)	10	TBD by USEPA	Selected dioxins and furans, TOC, and grain size	Exposure assessment
Subsurface soil	Stainless steel shovel, hand auger, or hand corer 6–12 inches (15–30 cm)	10	TBD by USEPA	Archive	Exposure assessment
Deep subsurface soil	Stainless steel shovel, hand auger, or hand corer 12–24 inches (30–60 cm)	10	TBD by USEPA	Archive	Exposure assessment

Notes
TOC = total organic carbon

Table 4
Sample Containers, Preservation, and Holding Time Requirements

Matrix	Container [a] Type	Size	Laboratory	Parameter	Preservation	Holding Time	Sample Size [b]
Soil							
	WMG	8 oz.	CAS - Kelso	TOC	4 ± 2°C	28 days	1 g
	WMG	16 oz.	CAS - Kelso	Grain size	4 ± 2°C	6 months	100 g
	WMG	8 oz.	CAS - Houston	Dioxins/furans	4 ± 2°C/Deep frozen (-20°C) [c] / -10°C [d]	1 year/1 year [e]	50 g
	WMG	8 oz.	CAS - Kelso	Archival	4 ± 2°C/ Deep frozen (-20°C) [c]	1 year [f]	50 g
Equipment Filter Wipe Blanks							
	WMG	4 oz.	CAS - Houston	Dioxins/furans	4 ± 2°C	1 year/1 year [e]	1 wipe

Notes

TOC = total organic carbon

WMG = wide mouth glass

a - The size and number of containers may be modified by the analytical laboratory.

b - Sample sizes are estimated.

c - Samples will be shipped to the laboratory on ice at 4 ± 2°C. Once received at the laboratory, samples will be stored at -20°C.

d - Extracts will be stored at -10 °C.

e - Holding time for samples prior to extraction/holding time for extracts.

f - Holding time for frozen samples is 1 year.

Table 5
Field Sample Collection Matrix

Station Number	Sample Identifier	Sample Number	Sample Depth	Sample Type	Residential Soil Sample Analyses				Blank Filter Wipes
									Whatman Grade 42 Filters
					TOC	Grain Size	Dioxins and Furans	Archival	Dioxins and Furans
					8 oz WMG[a]	16 oz WMG[a]	8 oz WMG[a]	8 oz WMG[a]	4 oz WMG[a]
					4±2 ºC	4±2 ºC	4±2 °C/ Deep frozen (-20°C)[b]/-10 °C	4±2 °C/ Deep frozen (-20°C)	4±2ºC
☐ SJRS001	SJRS001-A	SL _ _ _ _	0-6 inches (0-15 cm)	Normal	Tag #_____	Tag #_____	Tag #_____	Tag #_____	NA
	SJRS001-A-DUP	SL _ _ _ _	0-6 inches (0-15 cm)	Field Split[b]	Tag #_____	Tag #_____	Tag #_____	Tag #_____	NA
	SJRS001-B	SL _ _ _ _	6-12 inches (15-30 cm)	Normal	NA	NA	NA	Tag #_____	NA
	SJRS001-C	SL _ _ _ _	12-24 inches (30-60 cm)	Normal	NA	NA	NA	Tag #_____	NA
☐ SJRS002	SJRS002-A	SL _ _ _ _	0-6 inches (0-15 cm)	Normal	Tag #_____	Tag #_____	Tag #_____	Tag #_____	NA
	SJRS002-B	SL _ _ _ _	6-12 inches (15-30 cm)	Normal	NA	NA	NA	Tag #_____	NA
	SJRS002-C	SL _ _ _ _	12-24 inches (30-60 cm)	Normal	NA	NA	NA	Tag #_____	NA
☐ SJRS003	SJRS003-A	SL _ _ _ _	0-6 inches (0-15 cm)	Normal	Tag #_____	Tag #_____	Tag #_____	Tag #_____	NA
	SJRS003-B	SL _ _ _ _	6-12 inches (15-30 cm)	Normal	NA	NA	NA	Tag #_____	NA
	SJRS003-C	SL _ _ _ _	12-24 inches (30-60 cm)	Normal	NA	NA	NA	Tag #_____	NA
☐ SJRS004	SJRS004-A	SL _ _ _ _	0-6 inches (0-15 cm)	Normal	Tag #_____	Tag #_____	Tag #_____	Tag #_____	NA
	SJRS004-B	SL _ _ _ _	6-12 inches (15-30 cm)	Normal	NA	NA	NA	Tag #_____	NA
	SJRS004-B-DUP	SL _ _ _ _	6-12 inches (15-30 cm)	Field Split[b]	NA	NA	NA	Tag #_____	NA
	SJRS004-C	SL _ _ _ _	12-24 inches (30-60 cm)	Normal	NA	NA	NA	Tag #_____	NA
☐ SJRS005	SJRS005-A	SL _ _ _ _	0-6 inches (0-15 cm)	Normal	Tag #_____	Tag #_____	Tag #_____	Tag #_____	NA
	SJRS005-B	SL _ _ _ _	6-12 inches (15-30 cm)	Normal	NA	NA	NA	Tag #_____	NA
	SJRS005-C	SL _ _ _ _	12-24 inches (30-60 cm)	Normal	NA	NA	NA	Tag #_____	NA

Table 5
Field Sample Collection Matrix

Station Number	Sample Identifier	Sample Number	Sample Depth	Sample Type	Residential Soil Sample Analyses				Blank Filter Wipes
									Whatman Grade 42 Filters
					TOC	Grain Size	Dioxins and Furans	Archival	Dioxins and Furans
					8 oz WMG[a]	16 oz WMG[a]	8 oz WMG[a]	8 oz WMG[a]	4 oz WMG[a]
					4±2 ºC	4±2 ºC	4±2 °C/ Deep frozen (-20°C)[b]/-10 °C	4±2 °C/ Deep frozen (-20°C)	4±2ºC
☐ SJRS006	SJRS006-A	SL _ _ _ _	0-6 inches (0-15 cm)	Normal	Tag #_____	Tag #_____	Tag #_____	Tag #_____	NA
	SJRS006-B	SL _ _ _ _	6-12 inches (15-30 cm)	Normal	NA	NA	NA	Tag #_____	NA
	SJRS006-C	SL _ _ _ _	12-24 inches (30-60 cm)	Normal	NA	NA	NA	Tag #_____	NA
☐ SJRS007	SJRS007-A	SL _ _ _ _	0-6 inches (0-15 cm)	Normal	Tag #_____	Tag #_____	Tag #_____	Tag #_____	NA
	SJRS007-B	SL _ _ _ _	6-12 inches (15-30 cm)	Normal	NA	NA	NA	Tag #_____	NA
	SJRS007-C	SL _ _ _ _	12-24 inches (30-60 cm)	Normal	NA	NA	NA	Tag #_____	NA
☐ SJRS008	SJRS008-A	SL _ _ _ _	0-6 inches (0-15 cm)	Normal	Tag #_____	Tag #_____	Tag #_____	Tag #_____	NA
	SJRS008-B	SL _ _ _ _	6-12 inches (15-30 cm)	Normal	NA	NA	NA	Tag #_____	NA
	SJRS008-B-DUP	SL _ _ _ _	12-24 inches (30-60 cm)	Normal	NA	NA	NA	Tag #_____	NA
	SJRS008-C	SL _ _ _ _	12-24 inches (30-60 cm)	Field Split[b]	NA	NA	NA	Tag #_____	NA
☐ SJRS009	SJRS009-A	SL _ _ _ _	0-6 inches (0-15 cm)	Normal	Tag #_____	Tag #_____	Tag #_____	Tag #_____	NA
	SJRS009-B	SL _ _ _ _	6-12 inches (15-30 cm)	Normal	NA	NA	NA	Tag #_____	NA
	SJRS009-C	SL _ _ _ _	12-24 inches (30-60 cm)	Normal	NA	NA	NA	Tag #_____	NA
☐ SJRS010	SJRS010-A	SL _ _ _ _	0-6 inches (0-15 cm)	Normal	Tag #_____	Tag #_____	Tag #_____	Tag #_____	NA
	SJRS010-B	SL _ _ _ _	6-12 inches (15-30 cm)	Normal	NA	NA	NA	Tag #_____	NA
	SJRS010-C	SL _ _ _ _	12-24 inches (30-60 cm)	Normal	NA	NA	NA	Tag #_____	NA
☐ SRM	RSRM-900	SL _ _ _ _	Standard Reference Material	SRM	NA	NA	Tag #_____	NA	NA

Table 5
Field Sample Collection Matrix

					Residential Soil Sample Analyses				Blank Filter Wipes
									Whatman Grade 42 Filters
					TOC	Grain Size	Dioxins and Furans	Archival	Dioxins and Furans
					8 oz WMG[a]	16 oz WMG[a]	8 oz WMG[a]	8 oz WMG[a]	4 oz WMG[a]
Station Number	Sample Identifier	Sample Number	Sample Depth	Sample Type	4±2 ºC	4±2 ºC	4±2 °C/ Deep frozen (-20°C)[b]/-10 °C	4±2 °C/ Deep frozen (-20°C)	4±2ºC
☐ FW Blank	RSFW-901S	FW _ _ _ _	Surface Sampling Equipment	Equipment filter wipe blank[c]	NA	NA	NA	NA	Tag #_____
☐ FW Blank	RSFW-902C	FW _ _ _ _	Shallow Subsurface Sampling Equipment	Equipment filter wipe blank[c]	NA	NA	NA	NA	Tag #_____
☐ FW Blank	RSFW-903C	FW _ _ _ _	Deep Subsurface Sampling Equipment	Equipment filter wipe blank[c]	NA	NA	NA	NA	Tag #_____
☐ Filter Paper	RSFB-904C	FB _ _ _ _	Filter paper	Filter blank[d]	NA	NA	NA	NA	Tag #_____

Definitions

NA = not applicable
WMG = wide mouth glass

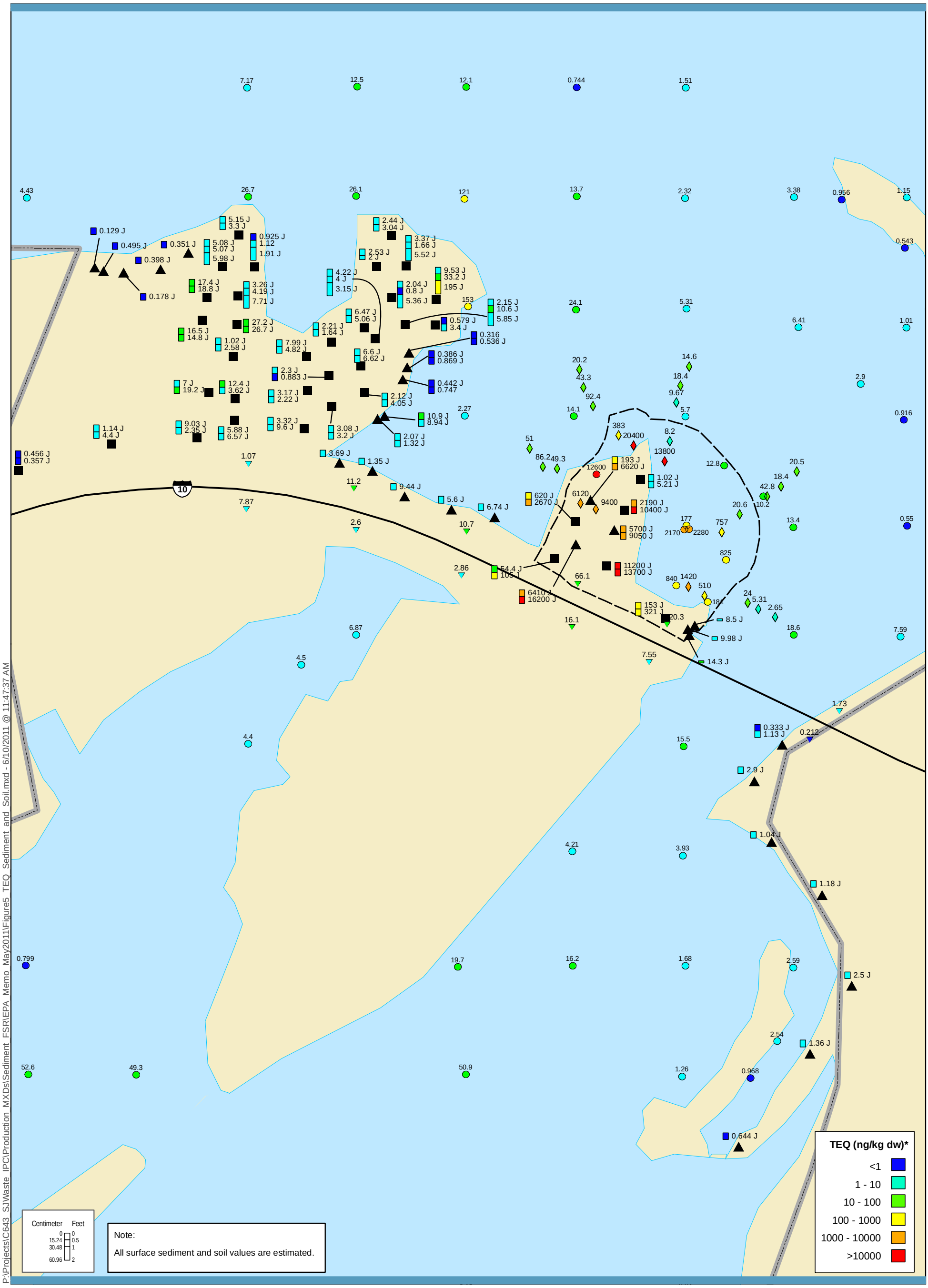
Note

A unique numeric sample tag number will be attached to each sample container. If the amount of material (i.e., everything associated with a single sample number) is too large for a single container, each container will have the same sample number and a different sample label with a unique sample tag number. A sample will also be split between containers if a different preservation technique is used for each container (e.g., freezing archive sample). The sample tag number will appear on the COC forms. Tag numbers are used by laboratories only to confirm that they have received all of the containers that were filled and shipped. Data will be reported by sample number.

a - The size and number of containers may be modified by the analytical laboratory.

b - Blind field split samples will be collected at a minimum frequency of 1 field split sample per 20 sediment samples.

c - A filter wipe blank sample will be collected at a minimum frequency of 1 per 20 sediment samples. One equipment wipe will be prepared for each analysis type (i.e., dioxins/furans). Separate tests of filter wipes will be collected for each type for each kind of sampling equipment used, as the equipment can be wiped down only once with each piece of filter paper. This ensures that the filter wipe result represents the most conservative estimate of cross contamination for each analysis type.
d - Filter blanks are prepared in the field to evaluate potential background concentration present in filter paper used for the equipment filter wipe blank. Filter blanks will be collected at a minimum frequency of one for each lot number of filter papers used for collecting the equipment wipe blank. The filter lot number will be clearly noted in the field logbook.



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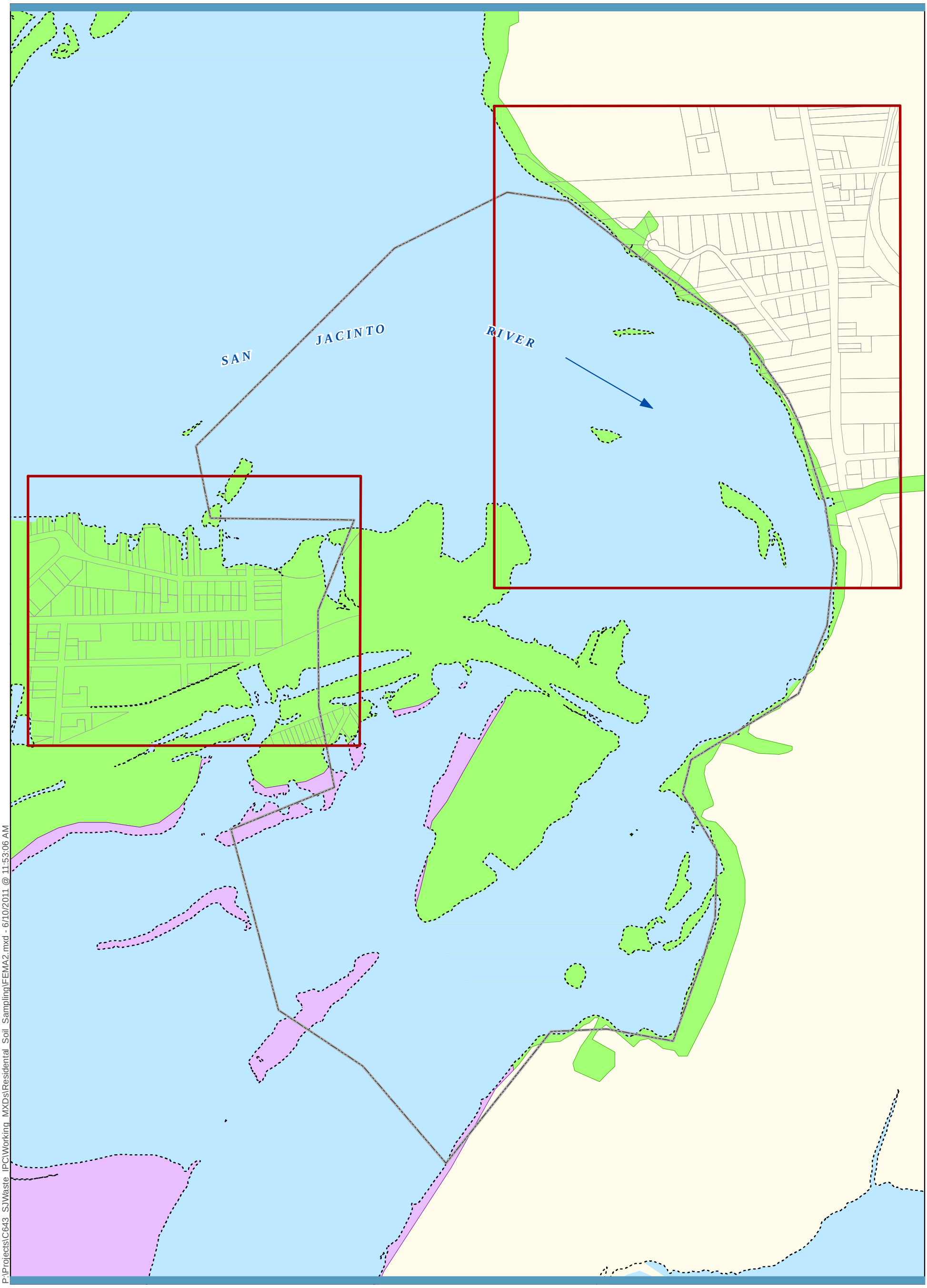
0 400
Scale in Feet

- Preliminary Site Perimeter
- Original (1966) Perimeter of the Northern Impoundments
- Core Location (Sediment)
- Core Location (Soil)
- RI Sediment Station
- TCRA Sediment Station
- TCRA Soil Station

*TEQ = toxicity equivalent for dioxins/furans using van den Berg, et al. 2006 for mammals (non detect =1/2 detection limit)

Figure 1
TEQ Concentrations (ng/kg dw)
in 2010 Surface Sediment and Soil Samples
on the Site Collected for the TCRA and the RI
SJRWP Soil SAP Addendum 2
SJRWP Superfund/MIMC and IPC



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0 1,000

Feet

- Sampling Area
- Preliminary Site Perimeter
- 0 contour (NAVD 88)
- Parcel Boundary
- 100 YR Coastal Floodplain
- 100 YR Floodplain

FEATURE SOURCES:
Parcel Boundaries: Harris County Appraisal District

Figure 2
100-Year Floodplain
SJRWP Soil SAP Addendum 2
SJRWP Superfund/MIMC and IPC